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*Joint symposium on maize and peanut. Held in Suriname  
on behalf of the 75th Anniversary of  
The Agricultural Experiment Station of Paramaribo.*

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## GEORGIA PEANUT PRODUCTION — A PACKAGE APPROACH

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It is a distinct honor and happy privilege to be invited to participate in this highly significant commemoration of Suriname's Agricultural Experiment Station's 75th Birthday and the 15th meeting of the Caribbean Food Crops Society.

We owe a depth of gratitude to South America for the peanut — one of nature's most nutritious food crops that probably originated in the eastern slopes of the Andes Mountains in Bolivia. Today in Georgia, peanuts rank as the number one cash crop with a farm value exceeding \$300 million and with a peanut processing value exceeding \$1 billion.

Peanuts are one of the three most important food legumes for mankind. In the world today, there are approximately 40 million hectares of soybeans, 17.2 MH of dry beans and 15.6 MH of peanuts. As a food crop, peanuts are still in their infancy. Greater emphasis upon its use as a food crop by your experiment station, the Caribbean Food Society and the U.S. Peanut Industry can and will cause it to make a greater food contribution for mankind in a protein deficient world.

U.S. is still one of the few peanut producing countries of the world that makes maximum use of the peanuts as a food crop. In most of the major peanut producing countries of the world such as India and China, where more than one half of the world's peanuts are grown, they are used mainly for oil instead of food use.

The chemical composition of the peanut, containing approximately 25% highly digestible protein and 50% oil makes it a natural for expanded use as a food crop. Since the protein is left in the meal or flour after the oil is expelled, there is the unlimited potential for using the peanut flour in human nutrition as bakery products and as meat substitutes or extenders. Such products or peanut flour will add a new dimension to the status of the peanut as a food crop plant. Research in this important area has only scratched the surface, and there is more to come.

Peanuts currently rank 13th among the list of those crops standing between mankind and starvation. Peanuts will likely move forward on this list and gain prominence in proportion to their increased use for edible purposes instead of for oil.

U.S. peanut efficiency is among the highest in the world. By acreage, U.S. ranks 6th in the world but in total production they move up to third place, accounting for approximately 10% of the world's peanut production.

Georgia's peanut growers have achieved the highest average per acre yield of any state in the U.S. or of any other peanut producing country of the world except Israel. Georgia's 1978 average yield per acre is 3300 pounds of pods per acre compared to 2600 pounds for the U.S. and 800 pounds per acre for the world average.

Georgia's peanut production success did not occur by accident, but through a viable research program that has provided the "Package of Technology" and an aggressive dynamic educational program that has resulted in its adoption by peanut growers.

A review of Georgia's per acre production reveals that there was very little progress achieved for a 20-year period from 1940-1960. During this period there was very little research and

### *Peanut – Cultivation and production*

extension effort placed on peanuts. However, during the past 20 years with increased research and industry effort the average yield of peanuts has almost tripled.

Peanut production in Georgia is based upon "A Package Approach". Peanuts are an ultra-sensitive crop plant from a cultural standpoint. For example, land preparation affects disease, weed and insect control. Therefore, a complete package of technology must be integrated and adopted by growers if they are to achieve maximum yield and quality of peanuts.

#### Land Selection

- Peanuts should not be planted on the same land more than one year out of three. Soil-borne and foliar diseases will be more severe. Also, if possible plant peanuts following a grass crop such as corn, small grains, sorghum or permanent pasture sod.

#### Land Preparation

Completely bury all surface litter and weed seed below 4 inches. Apply broadcast application or fertilizer if needed prior to land turning. Research results in Georgia have shown that this can best be accomplished by the use of a bottom plow equipped with trash covering devices. This also provides an ideal physical environment for peanut root development. The next step in land preparation is to apply soil incorporated herbicides to a depth of 3 inches and form precision – flat table top row beds.

#### Fertilizer and Lime

- Optimum soil pH for the peanut is 5.8 to 6.2. Peanuts usually respond better to residual fertility than to fertilizer directly applied. However, if soil is low in phosphorus and potassium as indicated by soil test, a moderate rate of fertilizer should be directly applied. Broadcast to raise this to a medium level, preferably preceding final land preparation.

#### Planting

- Peanuts are usually planted in 2, 4 or 6 rows per tractor, 2-3 inches apart in 32 inch to 36 inch rows 3 inches deep. In planting, care should be exercised in not pulling back up any buried crop or weed residue and the planting profile should be left level, smooth and with a table top finish. This allows the peanuts to flower and develop normally and also reduces seedling soil-borne diseases.

The peanut is a highly efficient legume and will synthesize its nitrogen needs provided the correct fixation bacteria is either in the soil or added. Calcium is essential in the pegging zone and is the most common cause of "Pops" or "Black Plumule". Boron deficiency causes "Hollow Heart" and can be corrected by applying one-half pound of actual boron per acre.

#### Varieties

Florunner variety has out-yielded all other peanut varieties over a 5-year period of testing in Georgia. Likewise, Georgia peanut growers plant this variety on 98% of the State's peanut acreage.

### Georgia peanut production – A package approach

#### Weed Control

- Consists mainly of a tank mixture of Vernam (2-3 pts.) plus Balan (3-4 qts.) per acre broadcast basis and incorporated 3 inches deep just prior to planting. This is followed by anyone of several mixtures of chemicals applied “at cracking” to further control any weeds which may have escaped pre-plant soil incorporated herbicides. Each chemical has its strong and weak points, therefore, a “prescription” approach should be used in the selection of peanut herbicides. Post applications of dinitro are often advisable if weeds emerge following “at cracking” treatments to control weeds in the 2-leaf stage with little or no damage to peanut seedlings.

#### Disease Control

- Southern Blight (*Sclerotium rolfsii*) is the most serious soil-borne disease of peanuts in Georgia. Partial control may be obtained by rotation, land preparation and by chemical means. This organism is a saprophyte, therefore, thorough disposal of previous crop and weed residue below 4 inches is essential. If these organisms find food material in the soil surface, the disease can then attack the peanut plant. Disease control by chemical means is suggested only in severe problem fields as a supplement to the cultural control.

*Cercospora* leafspot is the most serious foliar disease of peanuts with both early and late strains causing serious defoliation problems if not controlled with fungicides. Bravo + Sulfur has been the most effective fungicide treatment for both strains of *Cercospora* and rust (*Puccinia*) when used on a 10-14 days schedule, closely followed by Duter and Sulfur.

#### Insect Control

- Lesser cornstalk borer (*Elasmopalpus lignosellus*) has been the most serious peanut soil insect attacking pegs and pods particularly on light textured soils during dry years. No chemical applied to the soil at planting has given control during mid to late season when the insects attack peanuts. (2.0 lbs./A of Parathion or Dyfonate) granules applied in an 18 inch band over the row when a damaging infestation is found has given the most effective control. Foliage feeders consist mainly of corn earworm, velvetbean caterpillar and fall armyworms.

#### Water Use

- Although the peanut is quite tolerant to a moderate drought, irrigation has proven to be a profitable practice in Georgia on light textured soils. In spite of Georgia’s 48-inch average annual rainfall, distribution is the problem. A three year test has shown an average yield increase of 600 to 800 pounds per acre from the use of carefully timed supplemental irrigation. Approximately 40% of Georgia’s peanut acreage is under irrigation.

#### Maturity

- Peanuts of the Florunner variety should not usually be harvested until 70-80% of them are mature. “When to dig” is still more of an art than a science in spite of several new chemical

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techniques on peanut maturity that are in the research and development stages. There is no substitute for shelling out a representative sample of kernels to determine stage of maturity.

**Harvesting**

- Peanuts are mechanically inserted and left to partially dry in the sun for 2-3 days at which time the moisture percentage is reduced from 40% to approximately 20%. They are then combined and placed in drying wagons for artificial curing down to an average of 8½% moisture using temperatures not exceeding 915<sup>o</sup>F-100<sup>o</sup>F. Current emphasis is on using more forced air and less heat in reducing moisture for maximum peanut quality for seed or edible use.

*Georgia peanut production -- A package approach*

NAME OF PAPER: Georgia Peanut Production — A package approach  
(J.Frank McGill)

Questions by: Errol B. Whyte  
Country: Barbados

QUESTION: Do you have a nematode problem on peanuts in Georgia — if so, what are the recommended nematicides?

ANSWER: Yes — On approx. 15% of Georgia's lighter sandier textured soils there are rootknot problems of sufficient magnitude to warrant preventive chemical control. They are *Meloidogyne arenaria* and *Meloidogyne hapla*. Some lesion nematodes (*Pratylenchus sp.*) also infect peanut hulls and stems which probably opens the door for soil-borne fungi. However, the damage from these do not generally warrant a control recommendation.

P.S. Rec. nematicides are:

Soilbrom. 90 -1 -1.5 gal/row treatment or the lesser effective contact materials such as furadan or nematicur at 2.5 — 3.0 lbs. A.I./A on a 16" band incorp. over the row 3-6" deep.

Questions by: H. Payne  
Country: Jamaica

QUESTIONS: 1. Do you agree that here is a need to express peanut yields in terms of pounds per acre per week of growth to standardize comparison of varieties?

2. In Jamaica — experiments have indicated a prolonged period for maturity from 105 days to 145 days with a change in elevation from 50 ft. to 1500 ft above sea level.  
What effect do you think that elevation would have on yield levels?

ANSWERS: 1. Yes — I agree with you particularly in Central America where you can use the soil 12 months in the year.

2. Regarding elevation, if temperatures are not excessively cool (below 60°F at night) I would expect to obtain a higher yield at the higher elevation, assuming water and disease control were comparable.

P.S. If you will make your request through A.I.D. I can probably give you some further assistance.